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Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of	)	
Application for Review of Wi-LAN	)	
Regarding Certification under Part 15	)	DA 00-2317
of the Commission's Rules	)	ET Doc. No. 99-231
	)	

To: The Commission

COMMENTS OF METRICOM, INC.

Metricom, Inc. ("Metricom"), by its attorneys, hereby submits these Comments in response to the Commission's Public Notice in the above-captioned proceeding.[1] In this proceeding, Wi-LAN seeks Commission review of a denial by the Office of Engineering and Technology of Wi-LAN's application for certification of its wideband orthogonal frequency-division multiplexing ("W-OFDM") system under the provisions of Section 15.247 governing spread spectrum transmissions.

As an innovator in the use of unlicensed spread-spectrum technology for communications, Metricom recognizes the significant public benefits of multiple access schemes operating with noise-like signals, which characterize both OFDM and traditional spread-spectrum technologies. This new technology promises to use the frequency spectrum much more efficiently. More efficient operations are certainly in the public interest, especially today when there is fierce competition for the limited spectrum available. Metricom believes that OFDM systems such as Wi-LAN's W-OFDM should be certified under Section 15.247 as long as the criteria of that rule are met, and such certification will serve the public interest.

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1. Public Notice, DA 00-2317 (October 17, 2000).

As Metricom understands the current controversy, both the Commission and Wi-LAN agree that the W-OFDM transmitters at issue meet the technical requirements of Section 15.247 applicable to direct sequence systems. The issue on which the Commission has, to date, based its denial of certification is whether W-OFDM falls within the category of "direct sequence systems" as defined in Section 2.1 of the Rules, and thus is eligible for consideration under Section 15.247 as a threshold matter. However, this issue is noncontroversial and should be resolved in Wi-LAN's favor.

To be considered a "direct sequence system," a transmitter of information must (1) deliberately widen its bandwidth beyond that which would be needed to transmit the information alone; and (2) accomplish that widening by modulating the information with a high speed spreading code in a manner that causes the spreading function to dominate the modulated signal.[2] Wi-LAN states that it meets these requirements.[3] The Commission, on the other hand, appears to construe the definition narrowly in a way that would exclude the Wi-LAN operation – taking issue, for example, with the amount by which the bandwidth is widened,[4] and the way in which the spreading function operates.[5]

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2. *See* 47 C.F.R. § 2.1 (definitions of "direct sequence systems" and "spread spectrum systems").

3. *See* Application for Review at 8-9 (filed Sept. 18, 2000) (bandwidth is widened by a factor of approximately 3.6); id. at 11 (information stream is modulated by inverse fast Fourier transform). Of course, Wi-Lan should be required to demonstrate actual compliance with these requirements. Metricom has not independently reviewed Wi-LAN's technical showings, having no access to its test data.

4. *See* Letter from Dale N. Hatfield to Mitchell Lazarus (Sept. 14, 2000) (W-OFDM does not occupy a bandwidth *much* greater than necessary to transmit information) (emphasis added).

5. *See id.* (the spreading function in W-OFDM results in multiple sub-carriers instead of a single integrated signal).

Metricom believes that the definition should *not* be narrowly construed, both as a matter of statutory construction and as a matter of policy. On their face, the definitional requirements are qualitative in nature and do not depend upon any detailed technical analysis. The definition does not specify, for example, by how much the bandwidth must be widened, what kind of spreading code is to be used, or by how much the spreading function must dominate the modulated signal. Those kinds of tasks are the function of Section 15.247, which places detailed technical operating requirements on spread spectrum systems. The definition in Section 2.1 is simply intended to ensure that a spreading function is used, so that the requirements of Section 15.247 can be applied in a way that makes sense.[6] Accordingly, the definition in Section 2.1 should be construed liberally, with the knowledge that Section 15.247 will properly exclude inappropriate systems from operating in the unlicensed bands. Since the operation of the W-OFDM system described by Wi-LAN appears to meet the simple definition of a direct sequence system, Metricom believes that a certification should be granted based on compliance of W-OFDM with Section 15.247. Other OFDM systems should be treated similarly, and certified under Section 15.247 if they comply with that section's technical requirements.

The requirements of Section 15.247, in contrast to those of Section 2.1, should be rigorously enforced. Section 15.247 requires, *inter alia*, that a direct sequence system (1) have a minimum 6 dB bandwidth of 500 kHz;[7] (2) have a peak power spectral density no greater than 8 dBm in any 3 kHz band;[8] (3) demonstrate at least 10 dB processing gain.[9] These requirements are necessary to

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6. *See* 47 C.F.R. § 15.247(e)(1) (requiring certain measurements with the spreading code enabled and disabled in turn).

7. 47 C.F.R. § 15.247(a)(2).

8. 47 C.F.R. § 15.247(d).

9. 47 C.F.R. § 15.247(e).

ensure that the unlicensed band can be shared between multiple users operating with different technologies. In this case, however, it appears that the proposed W-OFDM operations would comply with the requirements of Section 15.247.[10]

Accordingly, the Commission should grant Wi-LAN's Application for Review and certify W-OFDM for use under Section 15.247. It should handle future requests for certification of OFDM systems in a similar manner.

Respectfully submitted,

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Dated: November 16, 2000

10. *See* Letter from Dale N. Hatfield to Mitchell Lazarus at 2 (Sept. 14, 2000).

CERTIFICATE OF SERVICE

I, J. Thomas Nolan, do hereby certify that I have on this 16th day of November, 2000 caused to be mailed by first class mail, postage prepaid, copies of the foregoing **"Comments of Metricom, Inc."** to the following:

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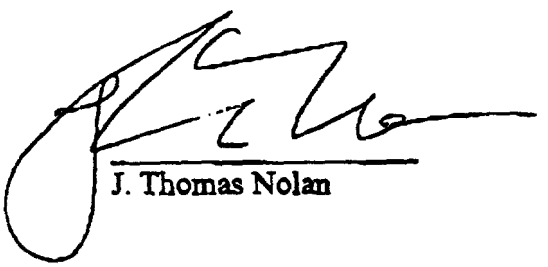

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